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P. cuneatus, *P. bulleri* (upon the authority of Loomis), *P. creatopus*, *P. opisthomelas*, *P. auricularis*, *P. griseus*, and *P. tenuirostris*. The extended biographical accounts of some of these Shearwaters are mostly from the published writings of Anthony.

Part III consists of pages 153 to 232, plates 40 to 66. One more species of *Puffinus* is included, and besides, one species of *Profinus*, one of *Thalassæca*, one of *Priocella*, two of *Majaqueus* and 23 species of *Æstrelata*. Of these latter genera only now and then a straggler visits the shores of North America.

While there was some delay in the appearance of Part III, the remaining two parts are promised subscribers within a reasonably short time.—J. G.

Report on the IMMIGRATION OF SUMMER RESIDENTS IN THE SPRING OF 1907: Also Notes on the Migratory Movements during the Autumn of 1906. By the Committee appointed by the BRITISH ORNITHOLOGISTS' CLUB. October 1908. Pp. 1-202, maps. = Bulletin British Orn. Club, Vol. XXII.

This is the third of a series of annual reports dealing with the migration of birds into the British Isles, issued by the British Ornithologists' Club. In an introduction of thirty-six pages the species treated are divided into four classes, according to the part of the coast on which they arrive, the daily weather conditions from March 14 to May 31 are tabulated, and the details of the chief movements as observed at the various lighthouses are given. In the body of the work thirty-three species are treated in detail, each with a chronological summary of the records, including dates of nesting, all but three with maps showing time and place of arrival, and there is a long list of unscheduled birds treated much more briefly. There are brief notes on the fall movements of 1906, covering twenty-five species, among which we note the House Sparrow (*Passer domesticus*) treated apparently as a migrant, which is rather surprising to those familiar with the species in this country only, where it is resident wherever found.

The report is strictly a tabulation of information received, generalizations being reserved for some future time when a sufficient mass of data shall have been accumulated.—H. S. S.

THE WINTER BIRDS OF COLORADO is the title of an article written by W. L. SCLATER, which appeared in the July (1908) number of *The Ibis*. Mr. Sclater in an easy (tho concise) style which is characteristic of his writings, has succeeded in condensing a great deal of general information concerning the subject mentioned into seven printed pages.

The paper was evidently written to convey a

general idea of the winter bird life of Colorado to English readers, and for a short paper is comprehensive.

It begins with an outline of the topography of the State, and a recapitulation of the total number of species recorded in Cooke's "Birds of Colorado." The body of the article treats of twenty-nine species observed during winter near Colorado Springs, and the paper closes with a list of sixty species of birds resident in El Paso County, and one of eighteen species classed as winter visitors.

Mr. Sclater, who is at present the Curator of the Colorado College Museum at Colorado Springs, was for some years the director of the South African Museum at Capetown, and is the son of Philip Lutley Sclater, the renowned British Ornithologist.—R. B. R.

NOTES ON SOME NORTHERN ARIZONA BIRDS by ALEX. WETMORE. [=Kansas University Science Bulletin, Vol. IV, No. 19; Whole Series, Vol. XIV, No. 19, pp. 377-388; Sept., 1908.]

This is an annotated list of forty species observed from February 24 to April 1, 1907, in the vicinity of Williams, Arizona, and on the lower slopes of Bill Williams Mountain. Examples were secured of all the species observed but one, *Buteo borealis calurus*. Of exceptional interest is the capture of specimens of *Sturnella magna hoopesi*, a species heretofore known only from the extreme southern border of the territory. *Cyanocephalus cyanocephalus* and *Loxia curvirostra stricklandi* were found breeding, or preparing to do so, while no less than five species of Juncos were taken (including the dubious "*Junco annectens*"), tho *J. dorsalis* appeared to be the only breeding species. Identifications of the doubtful species seem to have been made with care, tho the Canyon Wren of the region is referred to the exceedingly unsatisfactory *Catherpes mexicanus polioptilus* Oberholser, on the ground that those taken were "almost identical in coloration with a specimen of *C. mexicanus punctulatus* from Summit, Cal."!—H. S. S.

GRINNELL'S BIOTA OF THE SAN BERNARDINO MOUNTAINS.^a—This paper presents the results of a biological reconnaissance of the San Bernardino mountains of southern California. The summers of 1905, 1906, and 1907 were devoted to field work by the author and assistants from Throop Institute, and a considerable mass of material in the form of facts and specimens was garnered. The report is modeled somewhat on the lines of Merriam's

^a The Biota of the San Bernardino Mountains. By Joseph Grinnell. (Contribution from the Museum of Vertebrate Zoology of the University of California) University of California Publications in Zoology, V, No. 1, pp. 1-170, pls. 1-24. Dec. 31, 1908.

"Biological Survey of the San Francisco Mountain Region, Arizona," and is concerned in part with the same problems. In the introduction the author says:

"The San Bernardino mountains proper constitute the largest high mountain group in southern California, and include the highest peak south of Mt. Whitney. The forested area is more extensive than elsewhere in southern California, and promised a more abundant fauna. Furthermore, the isolation of this mountain group from any other of approximately similar altitude afforded an attractive feature. My interest therefore centered in this region, and I carried on investigations, with the purpose of ascertaining the composition of its fauna, and the local distribution of the component species."

The scope of the report is fairly indicated by the table of contents which is as follows: (1) Introduction; Itinerary. (2) Life Zones of the Region, with lists of the plants belonging to each. (3) General Considerations: A discussion relating to bird population and the influences modifying it. (4) Some plants of the Region: A list of important species with notes on their distribution. (5) The Birds: A list of 139 species found in the region with a detailed record of distribution in each case, extended biographical accounts of many species, and critical notes on others. (6) The Mammals: A list of 35 species detected in the region with statements of distribution, habits and measurements of specimens. (7) The Reptiles: A list of 20 species observed, with notes on food, habits and range.

Four life zones are included in this region. The Lower Sonoran zone occupies the Mojave desert plateau to the north, and parts of the much lower San Bernardino valley and San Gorgonio pass to the south. The Upper Sonoran embraces the vast chaparral belt of the Pacific slope, as well as the pinyon belt of the desert slope. Next above comes the Transition which comprises the major part of the considerable forested area, predominating above the 6500-foot contour. Finally, the Boreal occupies the highest parts of the region, largely above the 9000-foot contour. A colored map and profile of the mountains give an excellent idea of the distribution of these life areas.

The divisions of the Boreal into Canadian, Hudsonian and Alpine-Arctic were difficult to distinguish, and no great wonder for only three trees occur—*Pinus murrayana*, *P. flexilis* and *Populus tremuloides*. Boreal islands of small area are usually difficult to subdivide in proportion as they are distant from some Boreal feeder of considerable extent, although of course aridity and unfavorable soil play a very important part in reducing boreal species. The paucity of species in the present

instance is emphasized if comparison is made with the central Sierra Nevada, where the Canadian has in favorable localities 8 or 9 trees (4 or 5 characteristic) and the Hudsonian 5 or 6 (2 at least confined to that belt). If a count of the shrubs were taken the poverty of the San Bernardino Mountain flora would be even more evident. In the Sierra Nevada the shrubby plants are more valuable, sometimes, than trees for tracing zone boundaries in detail. In the San Bernardino mountains an upper and lower division of the Transition seemed to be more easily distinguishable than the Canadian from Hudsonian, or the latter from Alpine-Arctic.

Under "General Considerations" the author describes some of the influences which modify bird population. In July, when the season of scarcity arrives in the valleys on the advent of the summer drought, many birds that have raised broods in April, May and June, begin to migrate up the mountains, where the season of plenty is just beginning. The highlands are thus a ready refuge when the Upper and Lower Sonoran zones become comparatively barren under the July heat. "Without the mountains to accommodate the excess of bird population, which could not be supported in late summer on the withered lowlands, we would have far fewer birds in the spring." Both the residents and early summer visitants of the valleys, who have availed themselves of the hospitality of the mountains, return to the lowlands in the fall. The visitants thus become transients in the autumn before undertaking the southeastward migration to their winter habitat.

To the regular summer residents of the mountains—those which breed there and whose number is about doubled by the accession of offspring—are added the hordes of summer invaders, with their young, increasing the original population of the mountains at least four fold. The supply of food seemed bountiful enough for an even greater number of birds.

Since the aggregate population probably remains constant from year to year, the annual increase of about half a million (these figures being merely illustrative for the region under consideration) must succumb before the next nesting season. The determining factor, the author believes, is the food supply of the various species in their winter habitat, wherever that may be—either the mountains, in the case of the few permanent residents, or the lowlands in the case of the migratory forms. It is not possible in this short notice to advert to several illustrative examples, nor indeed to consider all the conclusions reached. The chapter is interesting and the points well taken.

Perhaps the rarest find among the birds was a specimen of *Otus flammeola idahoensis* captured June 15, 1905, at Bluff Lake. *Regulus*

satrapa olivaceus was collected, this constituting the southernmost breeding record for California. Forty-eight species are believed to be permanently resident, sixty-eight species summer visitants, and twenty-three transients only.

The avifauna of the San Bernardino mountains "in common with that of the other high mountains of southern California, bears closest resemblance to that of the Sierra Nevada of east central California. A tendency toward increase in size of such San Bernardino species as are subject to geographical variation is quite noticeable; so that in certain cases, such as the hermit thrush and creeper, the San Bernardino birds are somewhat intermediate in the direction of the Rocky Mountain races. Other species, like the Stephens fox sparrow and gray flycatcher, show large size, but are without parallels in the Rocky Mountain region. With variable birds in the mountain systems of California, there seems to be a general increase in size from the north towards the south, a reversal of the case on the Atlantic coast."

Numerous half-tones illustrating the region and its characteristic trees and shrubs add greatly to the interest and value of the paper.

Few regions offer such opportunities as the western United States for the kind of research of which "The Biota of the San Bernardino Mountains" is a good example. Americans have not been loath to take advantage of these opportunities, and it is safe to say also that the results thus far obtained have fully justified the labor. There is much more to do, and the watchword should be quality rather than quantity. We can well afford to make each contribution a careful and well-matured one. The present report certainly fulfils all these requirements and is a most excellent piece of work. Frankly, however, the reviewer can not wholly reconcile himself to the title, the neologistic tendency of which is somewhat academic.—W. K. FISHER.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

DECEMBER.—The December meeting of the Cooper Ornithological Club was held at the home of Walter K. Fisher, Palo Alto, California, on the evening of December 12, 1908. There were present: F. W. Weymouth, J. Dixon, W. P. Taylor, C. H. Richardson, J. Grinnell, J. O. Snyder, E. Heller, J. R. Pemberton, Chase Littlejohn, H. W. Carriger, Walter Fisher, H. S. Swarth, W. O. Emerson, J. S. Hunter and S. S. Berry.

The minutes of the previous meeting were read. On motion of Mr. Carriger the date of

the next meeting was changed in the minutes from December 19 to December 12, in order that the present meeting might be a regular one. Motion carried and the minutes changed. Otherwise minutes approved as read. Secretary was instructed to cast the ballot for F. Hanford and S. G. Jewett, and in accordance they were elected to membership.

The motion was made by Grinnell that all exchanges received by the Business Manager of THE CONDOR be retained by him for his personal use. Seconded by Richardson.

After considerable discussion by Grinnell, Fisher, Emerson and Hunter, the motion was carried.

It was reported that Lee Chambers was in charge of the publication of Avifauna No. 5, and that the work was progressing rapidly. Two hundred dollars had already been raised.

Grinnell moved that the Ten-Year Index of THE CONDOR be made Avifauna No. 6; seconded by Snyder. Carried and so ordered.

Moved by Grinnell that the nominations for Business Manager be opened. It was explained that Mr. Law had made arrangements whereby he could take charge and would withdraw his resignation. Mr. Law was nominated by Grinnell, seconded by Pemberton.

Mr. Grinnell moved that the Constitution be amended so as to create the office of Assistant Business Manager. Carried and so ordered.

Fisher suggested that the annual Club dinner be held on the evening of January 16. He stated that he would make arrangements and would inform the members.

After the business meeting talks were made by Mr. Dixon on the second Alexander Expedition to Alaska, and by Mr. Richardson on the birds of the region near Mecca, California.

During the discussion of the talks refreshments were partaken of. The meeting adjourned about 1 A. M., and was decidedly one of the most enjoyable that the Northern Division has had for years.

J. S. HUNTER, *Secretary*.

JANUARY.—The January meeting of the Cooper Ornithological Club was held in the rooms of the Oakland Chamber of Commerce on the evening of January 9, 1909, President D'Evelyn in the chair. Fourteen other members were present. Minutes of the December meeting were read and approved.

A letter was read by Mr. Emerson from Dr. Palmer regarding the proposed changes in the State Game law, particularly regarding the extending of the open season for ducks. Mr. Palmer asked that the Club oppose any measure of the sort. Mr. Emerson was appointed a committee of one to keep in touch with Sacramento and report any changes that are to be made in the present laws.

Dr. D'Evelyn spoke concerning the change